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(54) **Adaptive time diversity and spatial diversity for OFDM**

(57) An adaptable orthogonal frequency-division multiplexing system (OFDM) that uses a multiple input multiple output (MIMO) to having OFDM signals transmitted either in accordance with time diversity to reducing signal fading or in accordance with spatial diversity to increase the data rate. Sub-carriers are classified for

spatial diversity transmission or for time diversity transmission based on the result of a comparison between threshold values and at least one of three criteria. The criteria includes a calculation of a smallest eigen value of a frequency channel response matrix and a smallest element of a diagonal of the matrix and a ratio of the largest and smallest eigen values of the matrix.

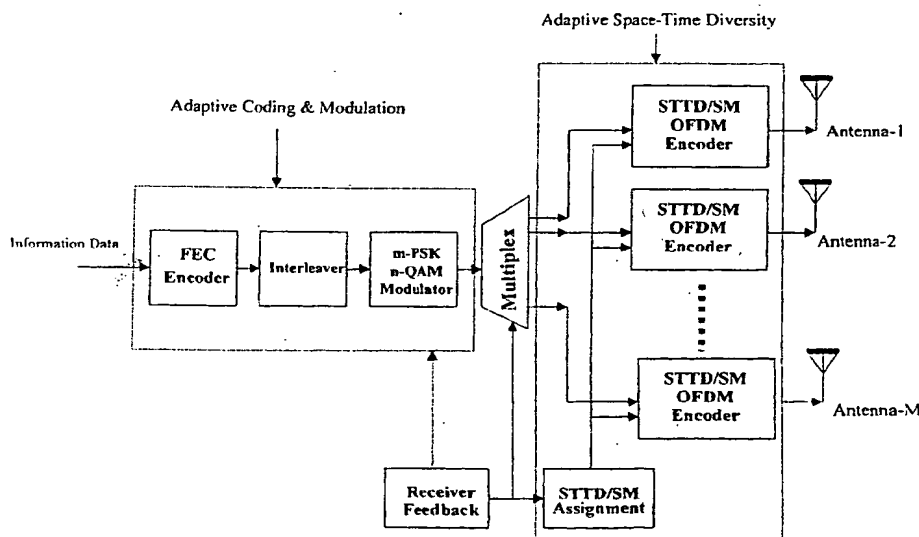


Figure-1



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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 7097

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A	WO 98 09381 A (UNIV LELAND STANFORD JUNIOR) 5 March 1998 (1998-03-05) * abstract * * page 6, line 5 - page 7, line 17 * * page 9, line 23 - line 35 * * page 10, line 20 - line 26 * * page 14, line 10 - page 15, line 24 * * page 19, line 6 - line 11 * * page 19, line 36 - page 20, line 4 *	1,9,11, 20,27,29	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H04L H04B
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 8 July 2003	Examiner Lopez Márquez, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EUROPEAN SEARCH REPORT

Application Number
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A	<p>LI Y G ET AL: "TRANSMITTER DIVERSITY FOR OFDM SYSTEMS AND ITS IMPACTS ON HIGH-RATE WIRELESS NETWORKS"</p> <p>ICC '99. 1999 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS. CONFERENCE RECORD. VANCOUVER, CA, JUNE 6 - 10, 1999, IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, NEW YORK, NY: IEEE, US, vol. 1, 6 June 1999 (1999-06-06), pages 534-538, XP000898323</p> <p>ISBN: 0-7803-5285-8</p> <p>* page 534, left-hand column, paragraph 1</p> <p>- page 535, right-hand column, paragraph 8</p> <p>*</p>	1,9,11, 20,27,29		
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CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>-----</p> <p>& : member of the same patent family, corresponding document</p>		
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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